

REMARKS

By the present amendment, claims 1, 5, 7 and 11 have been amended to obviate the examiner's objections thereto and/or to further clarify the concepts of the present invention. Among other things, independent claim 1 has been amended to incorporate the subject matter of claims 3 and 4 therein and dependent claims 3 and 4 have been cancelled.

It is submitted that these amendments to the claims are helpful in distinguishing the subject claims over the cited prior art and do not raise new issues which would require further consideration and/or search. In addition, it is submitted that such amendments place the application in better form for appeal by materially reducing or simplifying the issues for appeal. Furthermore, no additional claims are presented without cancelling a corresponding number of finally rejected claims. In view of the above, it is submitted that entry of the above amendments is in order and such is respectfully requested.

In the Office Action, claims 7-11 were rejected under the first paragraph of 35 USC § 112 as failing to comply with the written description requirement, that is, these claims allegedly were not supported by the description contained in the application as filed. Specifically, it was alleged that the specification does not support (a) the recitation in claim 7 that the water retentivity adjustment layer is a part of the gas diffusion layer. In addition,

it was alleged that the specification does not support (b) the recitation in claim 11 that the carbon particles have a higher specific surface area in the part facing the ribs than the part facing the oxidant channels in that it is inconsistent with the disclosure at paragraph 23 of the subject specification and thus has no support therein. Reconsideration of this rejection in view of the above claim amendments and the following comments is respectfully requested.

In response to (a), claim 7 has been amended to return to its original language which stated that "the gas diffusion layer has ~~includes~~ a water retentivity adjustment layer that is formed..." In response to portion (b), claim 11 has been amended to state that "carbon particles that are used in the parts facing the ribs have a ~~larger~~ smaller specific surface area than carbon particles that are used in the parts the oxidant channels." Such a recitation is in conformance with the disclosure at line 18 of page 51 to line 4 of page 52. It is submitted that the claims are now in full conformance with the provisions of the cited statute. Accordingly, withdrawal of the rejection under the first paragraph of 35 U.S.C. § 112 is respectfully requested.

Claims 5 through 10 and 11 were rejected under the second paragraph of 35 USC § 112 as being indefinite for being dependent upon canceled claim 2. In response, claims 5 and 7 have been amended so that these claims are dependent upon claim 1. Withdrawal of the rejection is therefore requested.

Claims 1 and 3-4 again were rejected under 35 USC § 102(b) as being anticipated by the patent to Taniguchi et al. Reconsideration of this rejection in view of the above claim amendments and the following comments is respectfully requested.

As mentioned above, independent claim 1 has been amended to incorporate the subject matter of claims 3 and 4 therein. With this amendment, claim 1 does not include the situation where the entire region of the fuel cell is constructed in the same manner as the fuel cell as defined in the previous claim 1. Therefore, it is submitted that the cited patent to Taniguchi et al does not teach or suggest the fuel cell as now defined by amended claim 1.

More particularly, it is a specific feature of the fuel cell of amended claim 1 that the gas diffusion layer is constructed in such a manner that, in a region of the gas diffusion layer which extends from an oxidant inlet side end toward an oxidant outlet side thereof, water retentivity is higher in parts facing the oxidant channels than in parts facing the ribs, and a size of the region is in a range of 10% to 90% inclusive of a size of an entire region extending from the oxidant inlet side end of the gas diffusion layer to an oxidant outlet side end thereof. According to this feature of the fuel cell of amended claim 1, it is possible to decrease the tendency of the parts of the proton exchange membrane or the electrode catalyst layer that face the oxidant channels to dry more than parts of the proton exchange membrane or the electrode catalyst layer that face the ribs, thereby enabling uniform

humidification of the proton exchange membrane or the electrode catalyst layer.

In addition to the above, the advantage as described in the specification at page 17, line 16 to page 18, line 8 is also realized. Specifically, air flowing in the oxidant channels generally is dryer at the air inlet side than at the air outlet side. Therefore, water is most liable to evaporate at the region where the gas diffusion layer faces the oxidant channels. However, if the fuel cell has the characteristics and features of the fuel cell as defined by amended claim 1, the entire cell can maintain more uniform wettability.

While, as asserted in the rejection, the Taniguchi et al patent apparently discloses that "the water retentivity is higher in regions facing the gas channels than regions facing the ribs for the entire region of the gas diffusion layer." However, the cited patent does not disclose the characteristics and features of the fuel cell of amended claim 1, that is, "the gas diffusion layer is constructed in such a manner that, in a region of the gas diffusion layer which extends from an oxidant inlet side end toward an oxidant outlet side thereof, water retentivity is higher in parts facing the oxidant channels than in parts facing the ribs, and a size of the region is in a range of 10% to 90% inclusive of a size of an entire region extending from the oxidant inlet side end of the gas diffusion layer to an oxidant outlet side end thereof." As a consequence, it is submitted that the Taniguchi et al patent does not disclose the effect of the fuel cell of amended claim 1, namely "enabling uniform humidification of both of the oxidant gas inlet side and the oxidant gas outlet side".

In the Office Action, the following was asserted with respect to the Taniguchi et al patent:

"The reference specifically states that the hydrophilic layers 203 are parallel to each other and are positioned almost along the centers of the gas channels and are properly dispersed into the entire porous substrate of the gas diffusion layer (col. 12, lines 49-62). ... The entire region of the gas diffusion layer having this differential water retentivity includes 10 to 90 % of the gas diffusion layer as seen in Figure 6(b)."

It is submitted that such an assertion is not supported by the Taniguchi et al patent. Specifically, in Figure 6(b) thereof, however, the hydrophilic layer 203 is provided for the entire region (100%) from the inlet to the outlet of the gas diffusion layer. There is not teaching or suggestion of the range of 10-90%.

In summary, it is submitted that the Taniguchi et al patent does not teach or suggest, among other things, a structure for a fuel cell of the type as set forth in the amended claims which includes the feature that the gas diffusion layer is constructed in such a manner that, in a region of the gas diffusion layer which extends from an oxidant inlet side end toward an oxidant outlet side thereof, water retentivity is higher in parts

facing the oxidant channels than in parts facing the ribs, and a size of the region is in a range of 10% to 90% inclusive of a size of an entire region extending from the oxidant inlet side end of the gas diffusion layer to an oxidant outlet side end thereof. Therefore, it is submitted that the subject claims as amended are not taught or suggested by the Taniguchi et al patent.

For the reasons stated above, withdrawal of the rejection under 35 U.S.C. § 102(b) and allowance of claim 1 as amended over the cited Taniguchi et al patent are respectfully requested.

Applicants acknowledge with appreciation the indication that claims 5, 6 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. Further, it is noted that claims 7-11 have not been rejected over the art of record.

In view of the foregoing, it is submitted that the subject application is now in condition for allowance and early notice to that effect is earnestly solicited.

In the event this paper is not timely filed, the undersigned hereby petitions for an appropriate extension of time. The fee for this extension may be charged to Deposit Account No. 01-2340, along with any other additional fees which may be required with

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respect to this paper.

Respectfully submitted,

ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP



Donald W. Hanson  
Attorney for Applicants  
Reg. No. 27,133

Atty. Docket No. 020313  
Suite 1000, 1725 K Street, N.W.  
Washington, D.C. 20006  
(202) 659-2930  
DWH/nk



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